

HELIPORT Project Meeting @HI Jena

Oliver Knodel // contact: o.knodel@hzdr.de



HELIPORT Project Meeting @ HI Jena

Wednesday, June 22

12:00 PM → 12:15 PM **Welcome, Introduction to HELIPORT and Roadmap** ⌚ 15m

Speaker: Oliver Knodel (Helmholtz-Zentrum Dresden-Rossendorf (HZDR))

12:15 PM → 1:00 PM **Features and latest extensions** ⌚ 45m

1. **Infrastructure Report:** Updates on code, CI, packaging, and other infrastructure-related topics. (David Pape)
2. **Latest Developments and Features:** Showcase of major updates since the last HELIPORT release on Rodare. (Martin Voigt)
3. **User Discussion:** Discussion on use cases, features, usability, and more.

Speakers: David Pape (HZDR), Martin Voigt (HZDR)

1:15 PM → 2:15 PM **HELIPORT@Jena Status and Metadata DB Discussion** ⌚ 1h

Speaker: Alexander Kessler (Helmholtz Institut Jena)

2:30 PM → 4:30 PM **Interactive Session I: Deployment** ⌚ 2h

Speaker: David Pape (HZDR)

5:00 PM → 6:00 PM **POLARIS Tour** ⌚ 1h

Speaker: Alexander Kessler

6:00 PM → 6:20 PM **Summary Day 1** ⌚ 20m

Speaker: Oliver Knodel (Helmholtz-Zentrum Dresden-Rossendorf (HZDR))

7:00 PM → 10:00 PM **Workshop Dinner** ⌚ 3h

Thursday, June 23

9:00 AM → 9:45 AM Interactive Session II: Milestone and Issue Discussion

⌚ 45m

Speaker: Oliver Knodel (Helmholtz-Zentrum Dresden-Rossendorf)

10:00 AM → 11:00 AM Project Summary

⌚ 1h

This part is also available for remote Participants (after registration)

1. Project Roadmap
2. Heliport Status
3. LaserDB: Next Steps

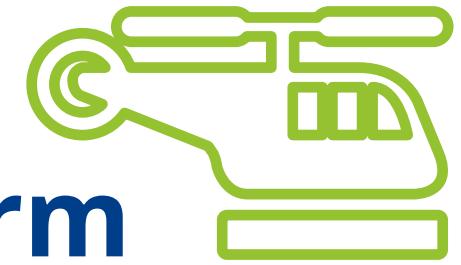
Speaker: Oliver Knodel (Helmholtz-Zentrum Dresden-Rossendorf)



BBB Room

11:00 AM → 11:30 AM Wrap-up and Closing Session

Convener: Oliver Knodel (Helmholtz-Zentrum Dresden-Rossendorf)



“ The HELIPORT project aims at developing a platform which accommodates the **complete life cycle** of a scientific project and links all corresponding programs, systems and workflows to create a more **FAIR** and comprehensible project description.

Project Members:

HZDR

HELMHOLTZ ZENTRUM
DRESDEN ROSSENDORF

HI JENA

Helmholtz Institute Jena

Founded by:

<HMC>

HELMHOLTZ
METADATA
COLLABORATION



Project Graph: gELBE beamtime 21102205-ST

The Project Graph displays the following interconnected components:

- Project:** Project Configuration, GATE Connection
- Systems:** Version Control, Documentation, Digital Objects
- Resources:** Data Source, CWL File, Tool, Workflow
- Automation:** CWL Jobs
- Results:** Archive, Publication

Below the graph, the footer includes links for About, Help, Contribute, Follow us, Member of HELMHOLTZ, and a note that it is Powered by HZDR, FZJ, HIJ & <HMC>.

```
{
  "namespaces": {
    "datacite": "http://purl.org/spar/datacite/",
    "rdfs": "http://www.w3.org/2000/01/rdf-schema#",
    "heliport": "https://heliport/schema/",
    "time": "http://www.w3.org/2006/time#",
    "dc": "http://purl.org/dc/terms/"
  },
  "heliport:project_id": 28,
  "datacite:hasIdentifier": "HZDR.FWCC.2021.84769",
  "heliport:uuid": "09779261-200c-48c4-be9c-f298369d6a1c",
  "datacite:handle": "https://hdl.handle.net/None",
  "heliport:project_name": "PaN Research Project",
  "time:hasBeginning": "2021-04-01 09:14:34.296524+00:00",
  "datacite:hasDescription": "",
  "heliport:group": "FWCC",
  "heliport:owner": {
    "datacite:hasIdentifier": "132739",
    "datacite:orcid": null,
    "rdfs:label": "Knodel, Dr. Oliver (FWCC) – 132739"
  },
  "heliport:has_VersionControl": [
    {
      "heliport:version_control_id": 15,
      "datacite:uri": "https://dd",
      "rdfs:label": "Test"
    }
  ],
  "heliport:has_DataManagementPlan": [
    {
      "heliport:data_management_plan_id": 6,
      "datacite:uri": "https://ddd",
      "datacite:hasDescription": "ddddd"
    }
  ],
  "heliport:has_Documentation": [
    {
      "heliport:documentation_id": 7,
      "datacite:uri": "https://ddd",
      "heliport:documentation_system": "MediaWiki",
      "datacite:hasDescription": "ddddd"
    }
  ],
  "heliport:has_DataSource": [
    {
      "heliport:data_source_id": 11,
      "datacite:uri": "http://ddd",
      "heliport:use_computer": null,
      "rdfs:label": "ddd",
      "datacite:hasDescription": ""
    }
  ]
}
```

Heliport (Project) Roadmap

First Draft: Project Plan (August 2020)

- Project and user management
- Configurable stages
- **REST API** for proposal information
- CWL visualization prototype

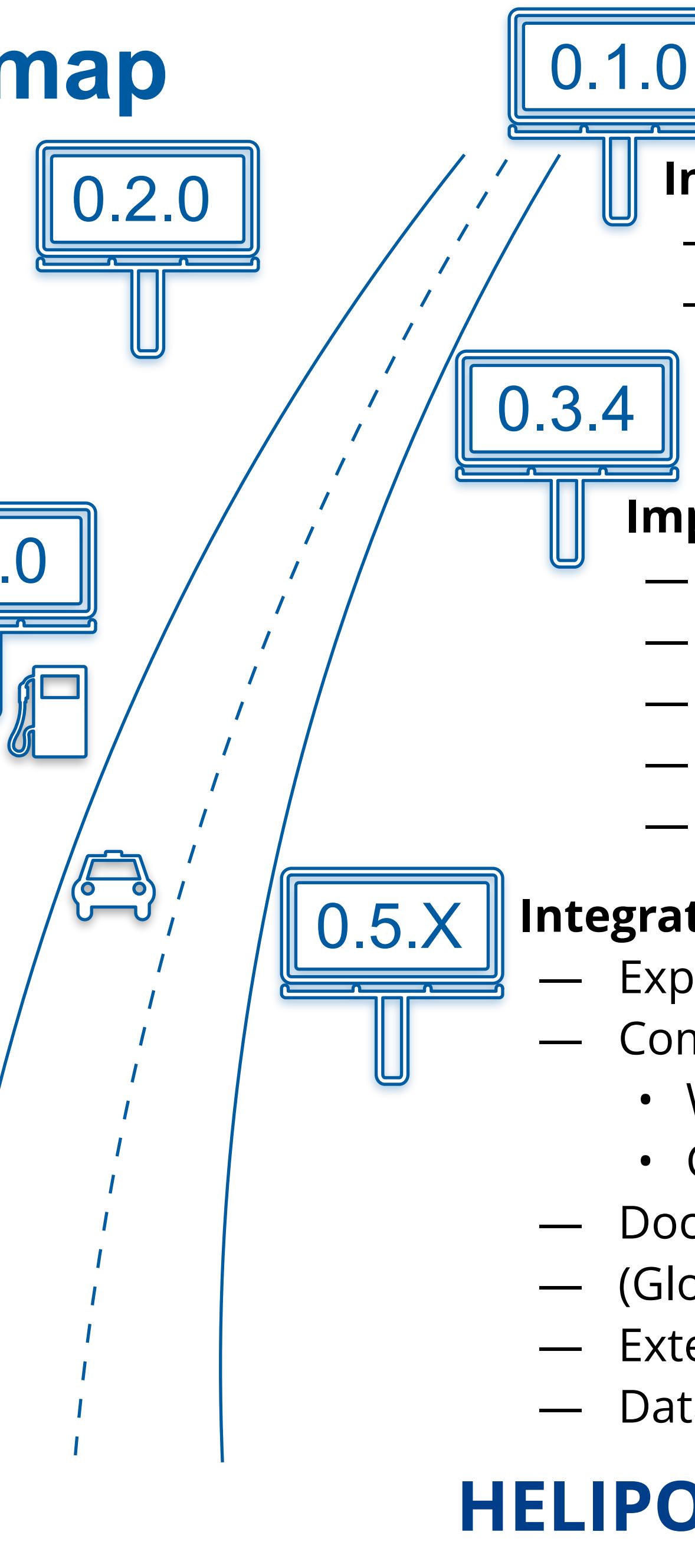
Modular Structure (July 2021)

- Subdivision of the stages into modular and configurable Django apps to allow individual extensions
- Refactoring of the project
- Official start of the HMC founded Heliport project:



Documentation TELBE and POLARIS experiment

- Integration of all related data sources
- Automated workflow initiation
- Publication of all data products



Closed Project Deliverables

② D1 – Concept for a modular system architecture and metadata schema based on DataCite

📅 March 2022

👤 HIJ and HZDR



This deliverable contains our efforts in a modular system architecture combining different metadata sources. First of all we developed a draft for the metadata representation of a HELIPORT project. The schema was generated using an example project and published in the data repository RODARE. The metadata schema is still under development and this entry will be updated to reflect further developments.

Another component is our effort to develop an experiment specific metadata schema for the High Intensity Laser (HIL) community. For this, HMC-supported discussions were started within the community.

👉 Example Project Plan generated by HELIPORT

❖ GitLab community project: Metadaten for HIL and experiments

💬 HMC Mattermost Channel: Metadata in the laser community

② D2 – Concept for an CWL integration and extension for UNICORE

📅 January 2022

👤 FZJ



This document contains a brief overview of the Common Workflow Language (CWL), as well as an overview of workflow execution in UNICORE. We then present the concept of how we plan to run tasks and workflows described in CWL in a UNICORE infrastructure. The chosen approach follows CWL „best practices“ by providing a client-side runner tool that parses CWL documents, translates them to UNICORE’s JSON job description and workflow description formats and then launches UNICORE jobs / workflows. We give an initial roadmap for providing the client-side runner tool.

📄 Document

② D3 – Prototype with basic Components (Project Flow, User Management and basic Scientific Workflow) as initial software version

📅 April 2021

👤 HZDR



The first version of the guidance system HELIPORT aims to make the entire life cycle of a project at the HZDR searchable, accessible, complete and reusable according to the FAIR principles, mentioned below. In particular, our data management solution deals with the areas from the generation of the data to the publication of primary research data, the workflows carried out and the actual research results. For this purpose, a concept was developed which shows the various essential components and their connections.

❖ HELIPORT GitLab project

❖ Demo instance

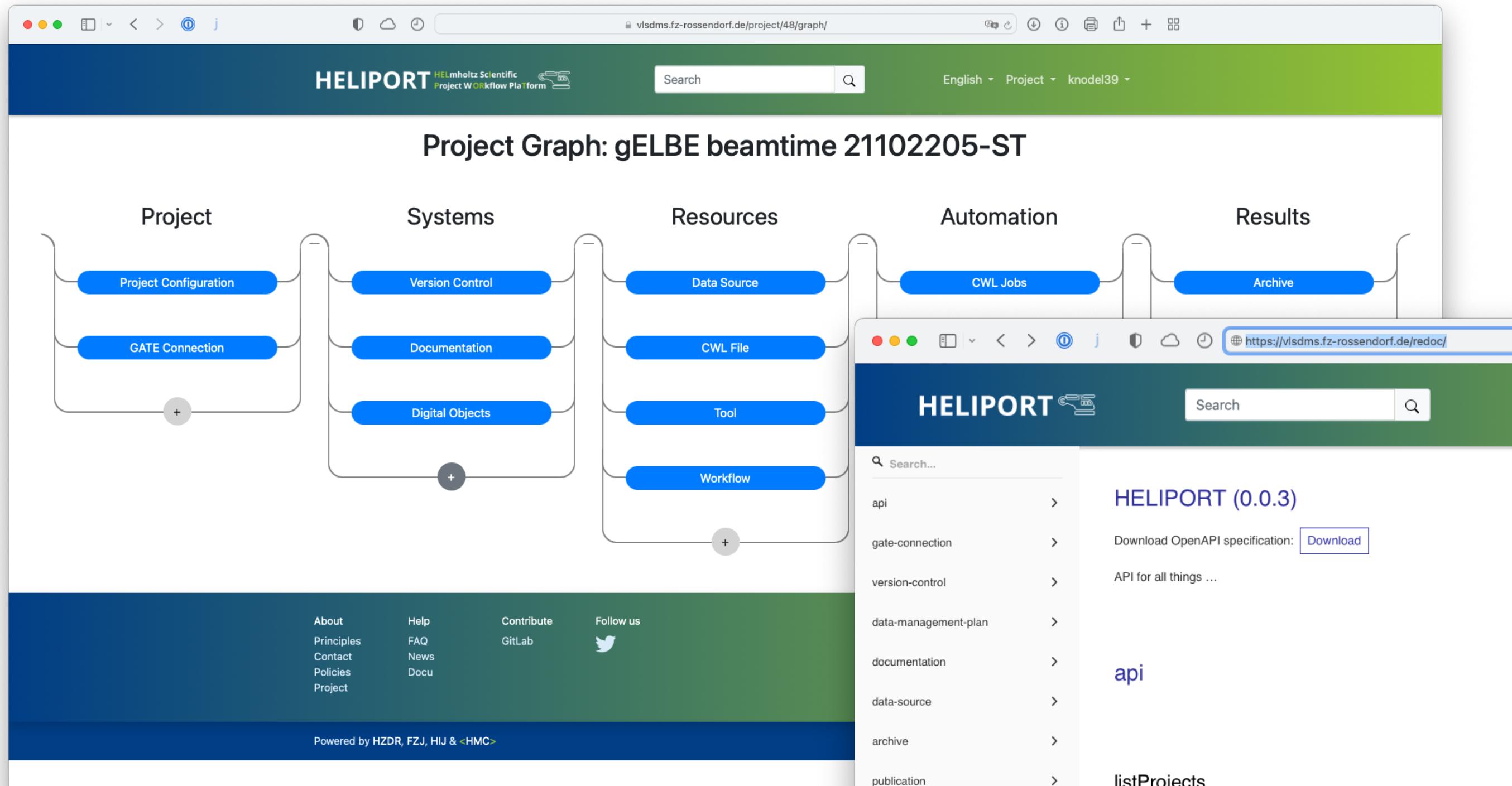
🔗 Data publication: HELIPORT (HELmholtz Scientific Project WORKflow PlaTform)

Open Project Deliverables

- **D4:** Implementation of a CWL-to-UNICORE module to submit UNICORE jobs to the HZDR HPC cluster as software version (with basic documentation) — **FZJ**
- **D5:** Deployment of (final) HELIPORT instances on HZDR and GSI infrastructures (sources and documentation public available in Github/Rodare) — **HZDR**
- **D6:** Data Publication of a TELBE experiment (plan and workflows) with all available data products generated using HELIPORT — **HZDR**
- **D7:** Data Publication of a POLARIS experiment (plan and workflows) with all available data products generated using HELIPORT — **HIJ**
- **D8:** ~~Blogpost on HIFIS (Project)~~ website (*and community event*) to generate visibility for HELIPORT — **HZDR**
- **D9:** Scientific publication describing HELIPORT concept prototype and impact on the real-life user experiments TELBE and POLARIS — **HZDR & HIJ**

Ressources

Website: heliport.hzdr.de



Demo: heliport.hzdr.de/app

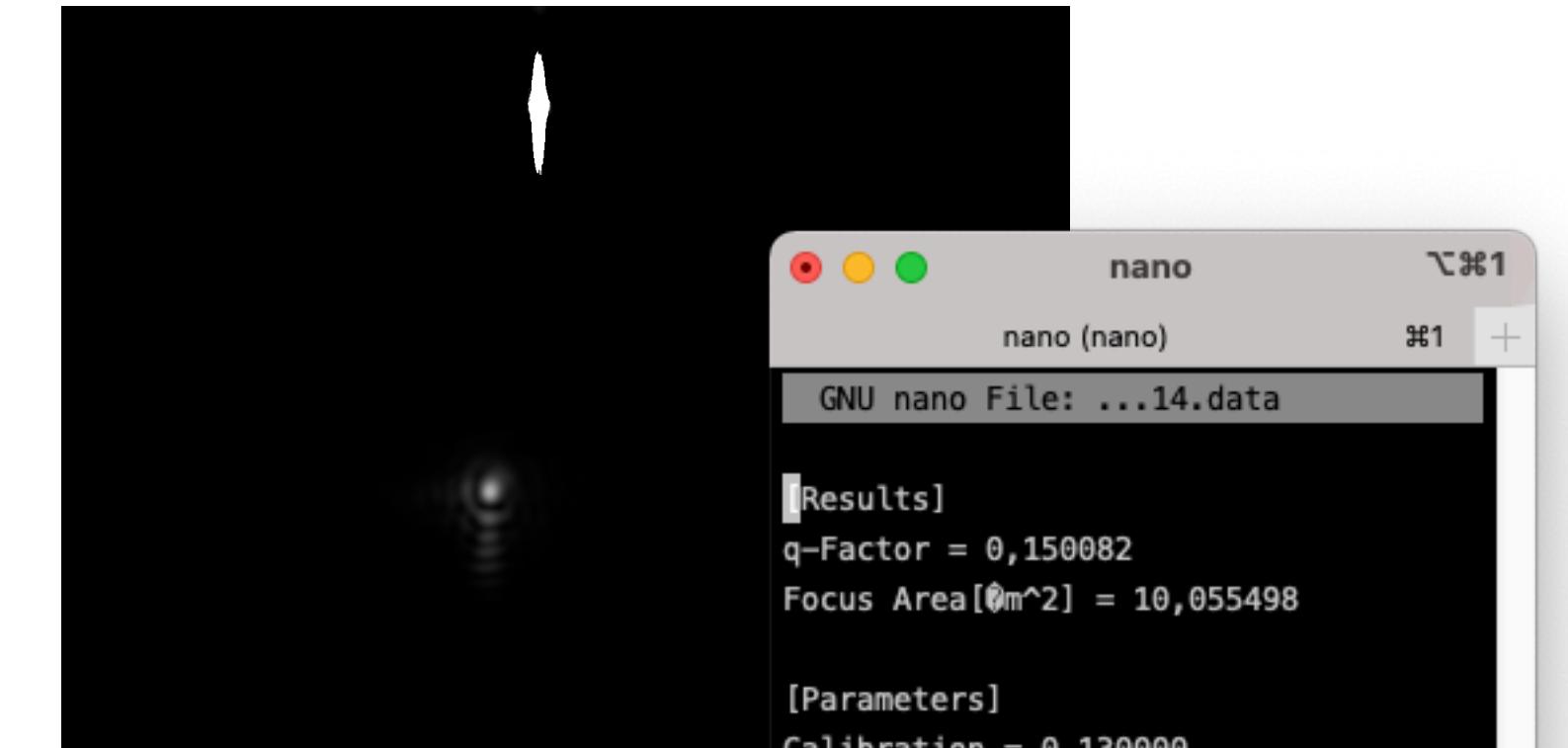
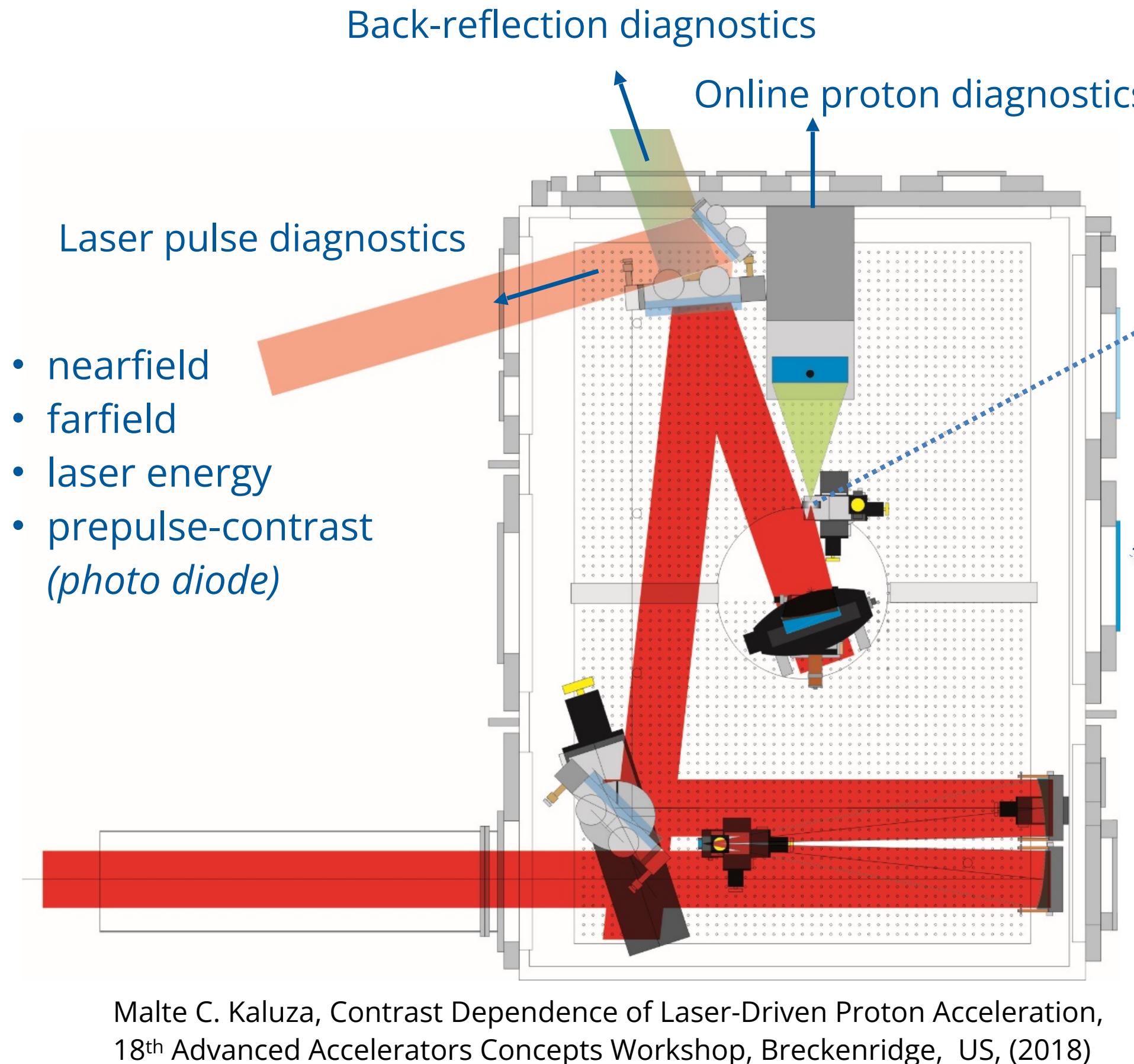
The screenshot shows the HELIPORT website and its API documentation. The top part of the screen displays the HELIPORT logo and the word "About". Below this, there is a brief description of the system's purpose: "The guidance system HELIPORT aims to make the entire life cycle of a project at the HZDR findable, accessible, interoperable and reusable according to the FAIR principles, mentioned below. In particular, our data management solution deals with the areas from the generation of the data to the publication of primary research data, the workflows carried out and the actual research results. For this purpose, a concept was developed which shows the various essential components and individual components can be found in our HZDR Data Management Strategy." The bottom part of the screen shows the API documentation for HELIPORT version 0.0.3. It includes a search bar, a sidebar with navigation links like "api", "gate-connection", "version-control", etc., and a main content area for the "listProjects" endpoint. The "listProjects" endpoint is described as showing general project properties. It includes a "QUERY PARAMETERS" section with fields for "limit", "offset", "search", "group", and "owner". Below this, there is a "Response samples" section showing a JSON response structure.

API Doc: heliport.hzdr.de/redoc/

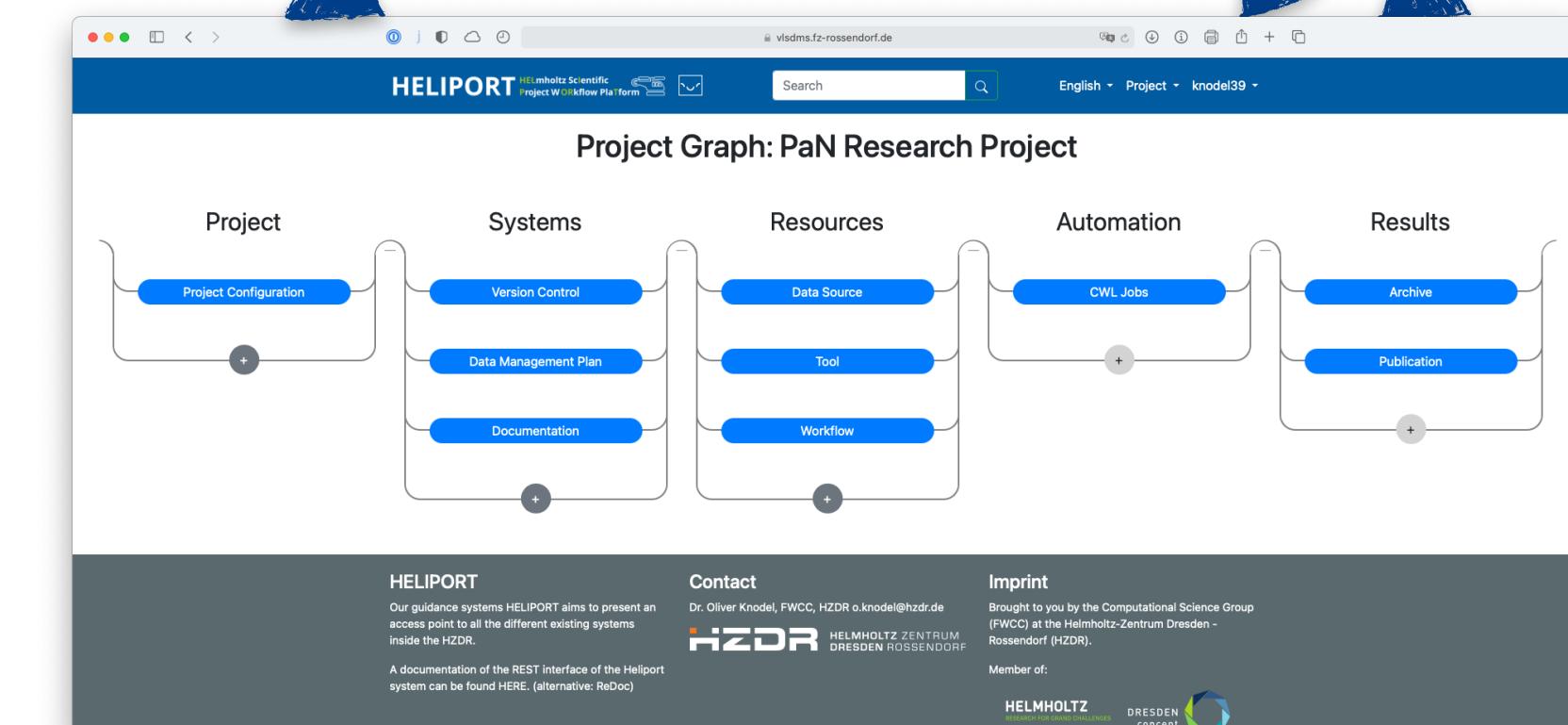
Topic I: Experiment Specific Metadata



POLARIS Experimental Setup



In the HELIPORT project, our goal is to bring all together: images, settings, target metadata and everything else.



```
GNU nano File: ...14.data

[Results]
q-Factor = 0,150082
Focus Area[0m^2] = 10,055498

[Parameters]
Calibration = 0,130000
Energy[J] = 10,000000
Size of region[px] = 2
#of Areas = 1
Target Point X = 0,000000
Target Point Y = 0,000000
Width Method = "FWHM"

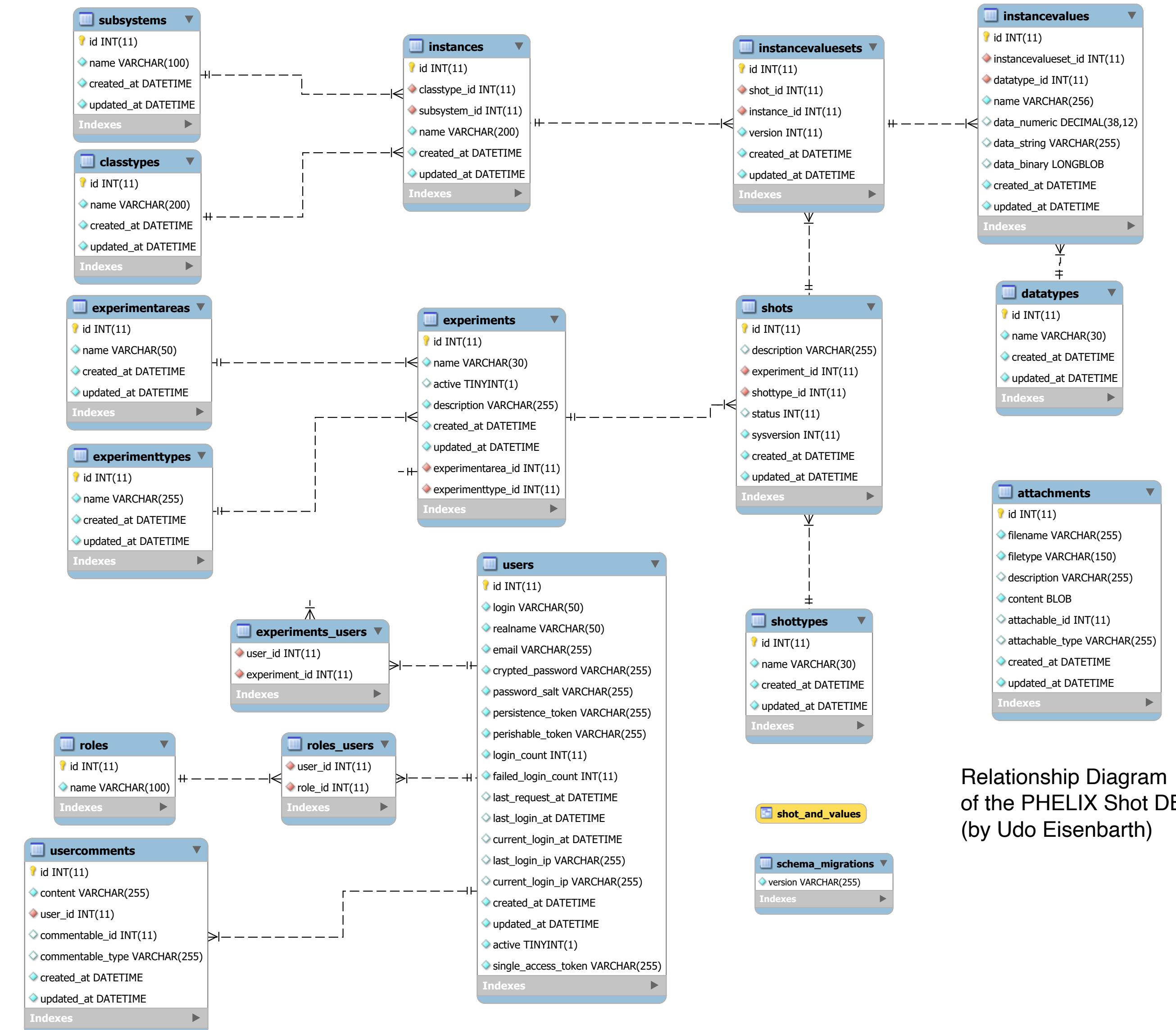
[Parameters.ROI]
GlobalRectangle.0 = 186
GlobalRectangle.1 = 346
GlobalRectangle.2 = 942
GlobalRectangle.3 = 1002

[Parameters.ROIContour.0]
ID = 0
Type = 4
Coordinate.0 = 186
Coordinate.1 = 346
Coordinate.2 = 942
Coordinate.3 = 1002

[G Get^O Wri^R Rea^Y Pre^K Cut^C Cur P
^X Exi^J Jus^W Whe^V Nex^U UnC^T To Sp]
```

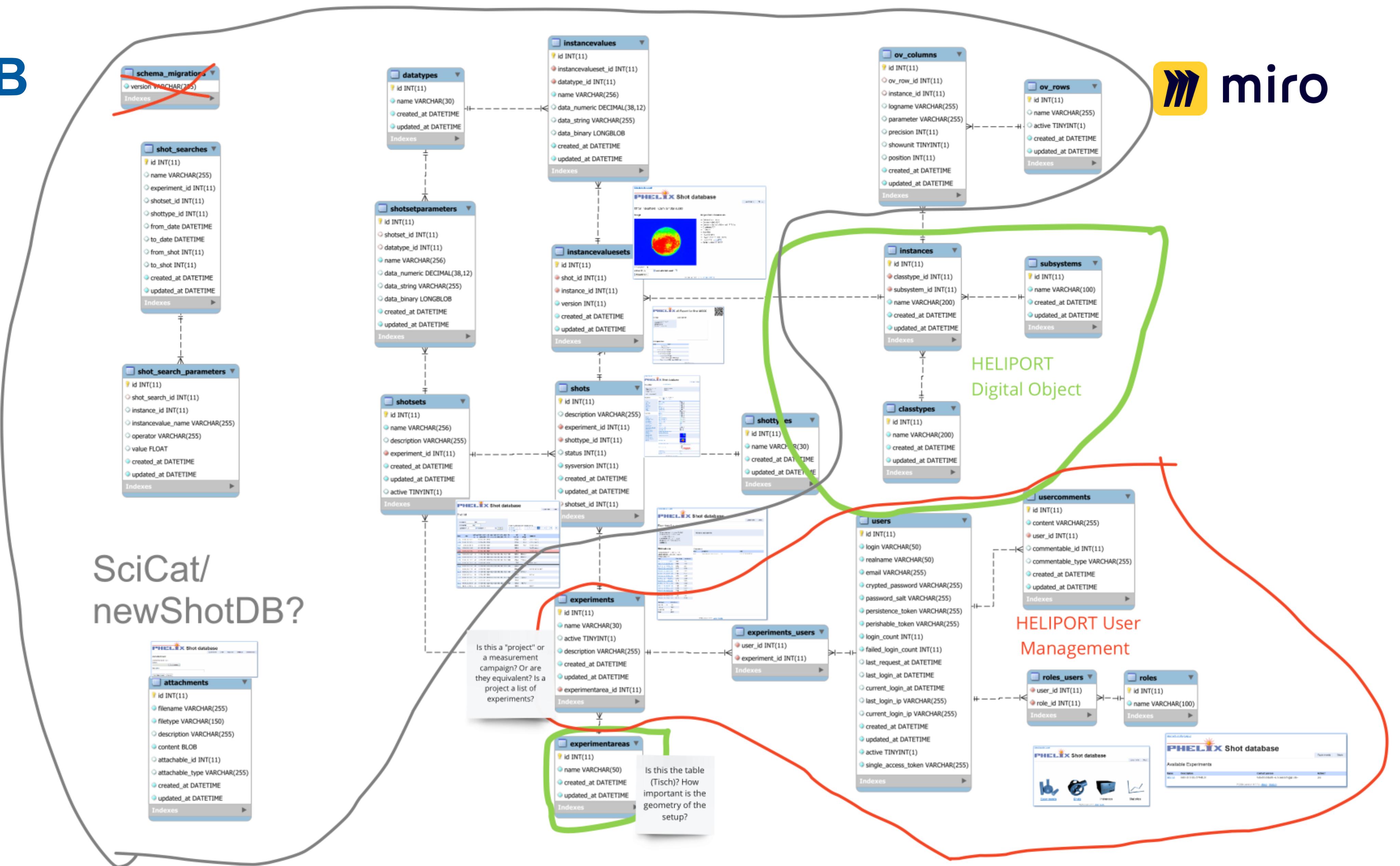
POLARIS Experiment Database

- The Metadata of the POLARIS experiment is managed by a modified version of the **PHELIX Shot DB**.
- Top-level project metadata is available within HELIPORT.
- Additionally a separate (POLARIS) **Laser Metadata Plugin** in HELIPORT is required:
 - (Meta)Data can be exchange with various system through REST APIs,
 - The experiment specific metadata will be exchanged with the PHELIX Shot DB and referenced in HELIPORT.
- The **Laser Metadata Plugin** provides a view in HELIPORT to configure laser specific metadata.



Relationship Diagram
of the PHELIX Shot DB
(by Udo Eisenbarth)

Shot DB (Draft)



Topic II: Handles and Landing Pages...



Handle and Landing Page Drafts

